Electronic Version
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Claims

[c1] 1. A method for evaluating the sulfide stress cracking (SSC) resistance of a cold worked metal, comprising:
determining the dislocation density of a first metal,
comparing the determined dislocation density of the first metal with that of the dislocation density of a second metal having a known
resistance to SSC, and
evaluating the SSC resistance of the first metal as a function of the comparison of the dislocation densities of the first and second metals.

[c2] 2. A method as defined in claim 1, further comprising:
determining the SSC of the first metal whereby the first metal serves as the second metal having a known resistance to SSC,
cold working the first metal,
stress relieving the first metal,
determining the dislocation density of the first metal after stress relieving the first metal, and
comparing the determined dislocation density of the first metal with that of the dislocation density of the second metal.

[c3] 3. A method as defined in claim 1, further comprising determining the dislocation density of the first metal with an interpretation device that can provide information about the grain structure of the first metal.

[c4] 4. A method as defined in claim 3, further comprising determining the dislocation density of the first metal with an electron microscope.

[c5] 5. A method as defined in claim 3, further comprising determining the dislocation density of the first metal with a transmission electron microscope.

[c6] 6. A method for establishing temperature and time of exposure parameters for stress relieving a cold worked metal to restore the metal to a state of SSC resistance existing in the metal before cold working, comprising:
determining the dislocation density of a first metal having a known SSC resistance before cold working,
cold working the first metal,
selecting a first set of temperature and time of exposure conditions for a first stress relieving process to be applied to the cold worked first metal,
stress relieving the cold worked first metal with the first stress relieving process,
determining the SSC resistance of the first metal follow-

ing the first stress relieving process,
comparing the SSC resistance of the first metal following the first stress relieving process with the SSC resistance of the first metal before cold working,
repeating the stress relieving and comparing process to establish a final stress relieving process by which the first metal having a known SSCresistance may be restored to such known SSC resistance following cold working.

[c7] 7. A method as defined in claim 6 further comprising, determining the dislocation density of the first metal having a known SSC resistance with an interpretation device that can provide information about the grain structure of the first metal.

[c8] 8. A method as defined in claim 6 further comprising determining the dislocation density of the first metal with an electron microscope.

[c9] 9. A method as defined in claim 6 further comprising determining the dislocation density of the first metal with a transmission electron microscope.

[c10] 10. A method of manufacturing a threaded tubular pipe body, comprising:
determining the resistance to SSC of a first metal of the

kind used in the manufacture of a threaded tubular body,

determining the dislocation density of the first metal,

swaging an axial end of a tubular pipe body constructed of the first metal,

stress relieving the swaged axial end of the tubular pipe body,

determining the dislocation density of the first metal forming the swaged axial end following stress relieving, and

evaluating the SSC resistance of the stress relieved, swaged axial end 25 as a function of the dislocation density following stress relieving of the metal forming the swaged axial end.

[c11] 11. A method as defined in claim 10 further comprising forming threads on the stress relieved, swaged axial end.

[c12] 12. A method as defined in claim 10 further comprising determining the dislocation density of the first metal with an interpretation device that can provide information about the grain structure of the first metal.

[c13] 13. A method as defined in claim 10 further comprising determining the dislocation density of the first metal with an electron microscope.

[c14] 14.A method as defined in claim 10 further comprising determining the dislocation density of the first metal with a transmission electron microscope.

[c15] 15. A method as defined in claim 10 further comprising forming threads on the stress relieved, swaged axial end.

[c16] 16. A method as defined in claim 15 further comprising forming
threads on the axial end opposite the stress relieved, swaged axial end.

[c17] 17. A threaded tubular body made by the process of:
determining the resistance to SSC of a first metal of the kind used in the manufacture of a threaded tubular body,
determining the dislocation density of the first metal,
swaging an axial end of a tubular pipe body constructed of the first metal,
stress relieving the swaged axial end of the tubular pipe body,
determining the dislocation density of the first metal forming the swaged axial end following stress relieving,
evaluating the SSC resistance of the stress relieved, swaged axial end as a function of the dislocation density following stress relieving of the metal forming the swaged axial end, and

forming threads at each axial end of the tubular body.